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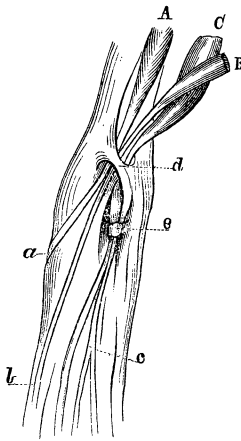
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Colorado at the last meeting of the Academy, although LeConte and others had regarded them as probably miocene.¹ He stated, moreover, that the evidence from palæontology was discrepant, and that it must be conceded that a tertiary flora was contemporary with a cretaceous fauna. He quoted Dr. Hayden as having shown that there was no physical interruption in the series of deposits above enumerated, and that the incongruity in the palæontology is to be regarded as evidence that no extinction or re-creation of a general character had taken place during this time; that the apparent interruption in the vertebrate life in the disappearance of large land saurians and appearance of land mammalia is due to the irruption of the latter by migration probably from the south.

FEBRUARY 3.

The President, Dr. RUSCHENBERGER, in the chair.

Eighteen members present.



Dr. CHAPMAN exhibited a dissection of one of the hind legs of a muskrat, *Fiber zibethicus*. The tendons of the tibialis anticus (*a*), extensor proprius hallucis (*b*), and extensor longus digitorum (*c*), pass down a groove in the tibia and under a little process of bone (*d*). The extensor longus digitorum is held down by an additional process (*e*). This arrangement seems to quicken the extension of the foot, and is of use apparently to the animal in swimming.

Remarks on Protozoa.—Prof. LEIDY remarked that while it was exceptional to find the same species of the higher subkingdoms in the different parts of the world, it appeared to be the rule that most species of *Protozoa* were found everywhere under the same conditions. A large number of our fresh-water forms he had recognized as the same as those described by European authors. A less number of species are probably peculiar to every region. Among our fresh-water *Rhizopods* he had observed not only the genera *Amœba*, *Arcella*, *Diffugia*, *Euglypha*, *Trinema*, *Lagynis*, *Actinophrys*, etc., but also most of the species of these as indicated by European naturalists.

¹ LeConte, Notes on Geol. Pacific R. R. Co., 1868, p. 65.

Of the genus *Arcella*, *A. vulgaris* and *A. dentata*, with their varieties, are common with us. In the genus *Diffugia* the likeness of our species to those of Europe is striking. Besides *D. proteiformis*, *D. acuminata*, *D. compressa*, *D. pyriformis*, *D. aculeata*, etc., he had observed the beautiful form described by the English naturalist, Dr. Wallich, under the name of *D. corona*. The shell of this species resembles a Roman helmet, with from five to seven spines, and it has the mouth notched with twelve serrations. A comparatively large species observed may be peculiar, though future investigation may prove it to be only a variety of *D. lageniformis*. The shell has the form of an ancient amphora, without the handles, and it measures the fourth of a line in length. With its delicate pseudopods of varied form, and sometimes extending far beyond the length of the shell, it appears as a microscopic vase of phantom plants.

Among *Amœba* he had observed one which he suspected to be the same as *A. princeps* of Ehrenberg, but it was twice the size given by this author. It was remarkable for its activity and wonderful changes of form. At first globular, the next moment pseudopods appear like a multitude of dewdrops all over the surface. A few of these stream forth and widen in their course, while others disappear. The animal will then extend itself and appear like a branching coral. At one moment it will enter and traverse the interstices of a mass of mud and sand, and then emerge without an adherent particle. Detached and floating it will appear like a long-rayed star. At times it assumes the most grotesque forms—that of a human head with a rapidly growing nose; the outline of an elk with the antlers extending, or a leg elongating at the expense of the body. The species is common in the vicinity of Philadelphia. First observed in the neighborhood of Swarthmore College, it was also found in the ditches of the Neck below the city. The animal contained a multitude of minute particles of ellipsoidal form which reminded him of the discoliths of the *Bathybius* of Prof. Huxley.

It is an interesting question whether our fresh-water protozoa have reached us from the same sources as those of Europe and other remote countries. If derived from the same sources they were probably infused in the waters of the different continents at an early age when the latter were not separated by ocean barriers. If thus early infused we have a remarkable instance of a multitude of specific forms retaining their identity through a long period of time. Such a view might appear to oppose the doctrine of evolution, but not justly so, for the simplest forms would be the slowest or least likely to vary, while the most complex, from their extended relationships, would be most liable to variation. Perhaps, however, the simplest forms of life, of the same species, may have originated independently of one another, not only in different places, but also at different times, and may

yet continue to do so. While the highest forms of life may have been slowly evolved from the simplest forms of the remotest age, equally simple forms may have started into existence at all times down to the present period. From the later original forms new ones may have been evolved to speed towards the same goal as those which preceded them.

FEBRUARY 10.

The President, Dr. RUSCHENBURGER, in the chair.

Twenty-four members present.

The death of Prof. William Procter was announced.

FEBRUARY 17.

The President, Dr. RUSCHENBERGER, in the chair.

Twenty-six members present.

On the Mode of Growth of Desmids.—Prof. LEIDY made some remarks on the mode of reproduction and growth of the *Desmids*. In illustration he described a common species of *Docidium* or *Pleurotænium*. This consists of a long cylindroid cell constricted at the middle and slightly expanded each side of the constriction. When the plant is about to duplicate itself, the cell-wall divides transversely at the constriction. From the open end of each half cell there protrudes a colorless mass of protoplasm defined by the primordial utricle. The protrusions of the half-cells adhere together and continue to grow. The bands of endochrome now extend into the protrusions and subsequently keep pace with their growth. The protrusions continue to grow until they acquire the length and form of the half-cells from which they started. The exterior of the new half-cells thus produced hardens or becomes a cell-wall like that of the parent half-cells. In this condition two individuals of *Docidium* are frequently observed before separation. During the growth of the new half-cells the circulation of granules in the colorless protoplasm is quite active. In a species of *Docidium* $1\frac{1}{2}$ mm. long by $\frac{1}{10}$ mm. broad, the growth of the new half-cells was observed to be at the rate of about $\frac{1}{3}$ mm. in an hour.